

Rules for Naming Ions

Positive Ions (Cations)

Rule	Example	Name
1. Cations formed from metals have the same name as the element.	Na^+	sodium ion
2a. For a cation that can have different charges, indicate the charge by Roman numerals in parentheses.	Fe^{3+} Fe^{2+}	iron(III) ion iron(II) ion
2b. Or, instead of 2a., use a root name with the suffix <i>-ic</i> to denote the ion whose positive charge is larger, or the suffix <i>-ous</i> to denote the ion whose positive charge is smaller.	Fe^{3+} Fe^{2+}	ferric ion ferrous ion
3. Cations formed from nonmetals end in <i>-ium</i> .	NH_4^+	ammonium ion

Negative Ions (Anions)

Rule	Example	Name
1. For single-atom ions, replace the end of the element's name with <i>-ide</i> .	H^-	hydride ion
2. A few simple polyatomic anions have names ending in <i>-ide</i> .	OH^-	hydroxide ion
3. For polyatomic ions containing oxygen, or <i>oxyanions</i> , the most common form of the ion has a name ending in <i>-ate</i> .	CO_3^{2-} ClO_3^-	carbonate ion chlorate ion
4. Use the suffix <i>-ite</i> to indicate one less oxygen than for the suffix <i>-ate</i> .	ClO_2^-	chlorite ion
5. Use the prefix <i>hypo-</i> to indicate one less oxygen atom than for the <i>-ite</i> ending.	ClO^-	hypochlorite ion
6. Use the prefix <i>per-</i> to indicate one more oxygen than for the <i>-ate</i> ending.	ClO_4^-	perchlorate ion
7. Use the prefix <i>thio-</i> to indicate a sulfur atom has replaced an oxygen atom.	SO_4^{2-} $\text{S}_2\text{O}_3^{2-}$	sulfate ion thiosulfate ion
8. Use <i>bi-</i> before the anion name to indicate the presence of a replaceable hydrogen.	CO_3^{2-} HCO_3^-	carbonate ion bicarbonate ion